

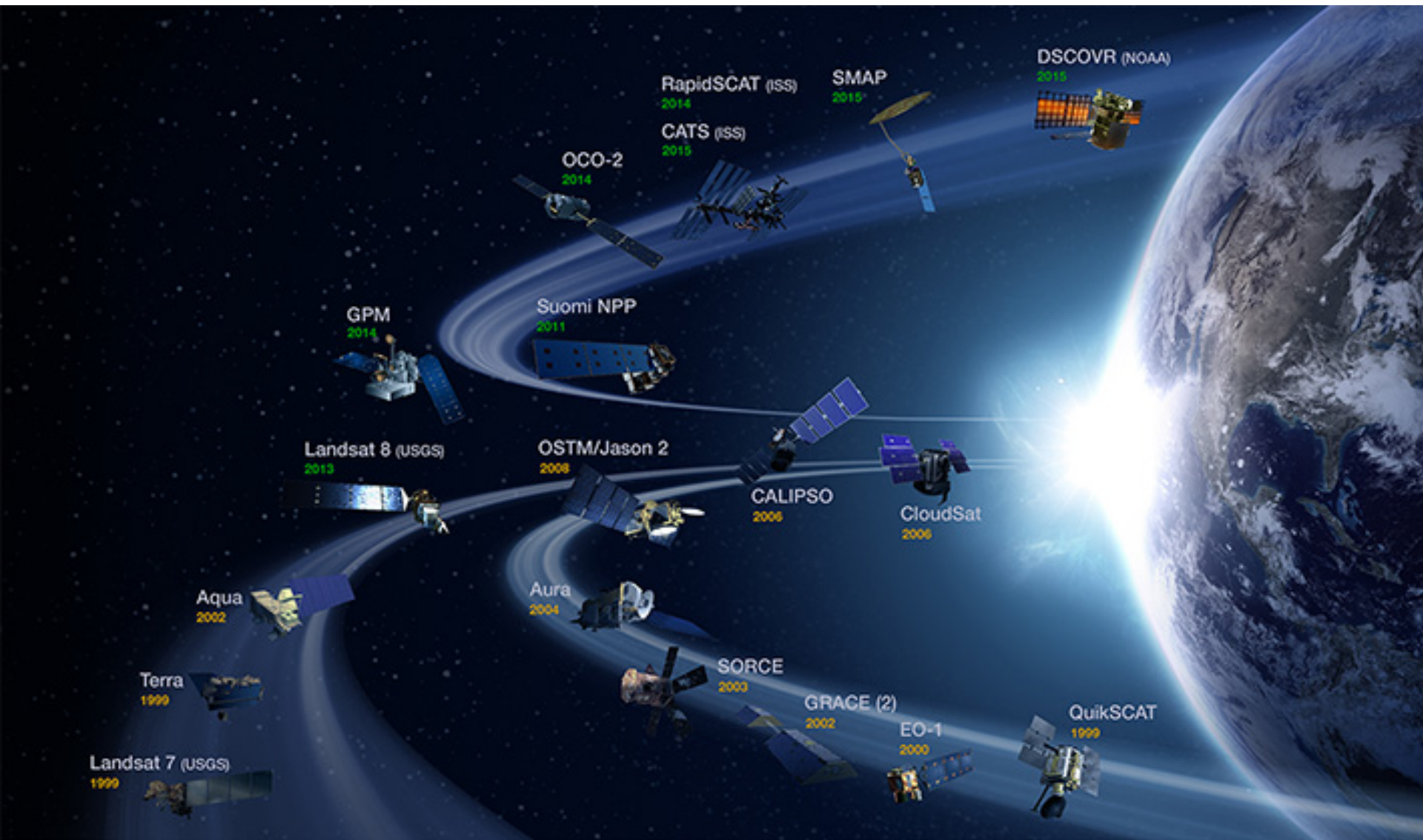
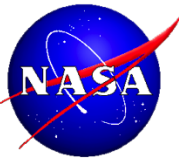
NASA EOSDIS Evolution in the BigData Era



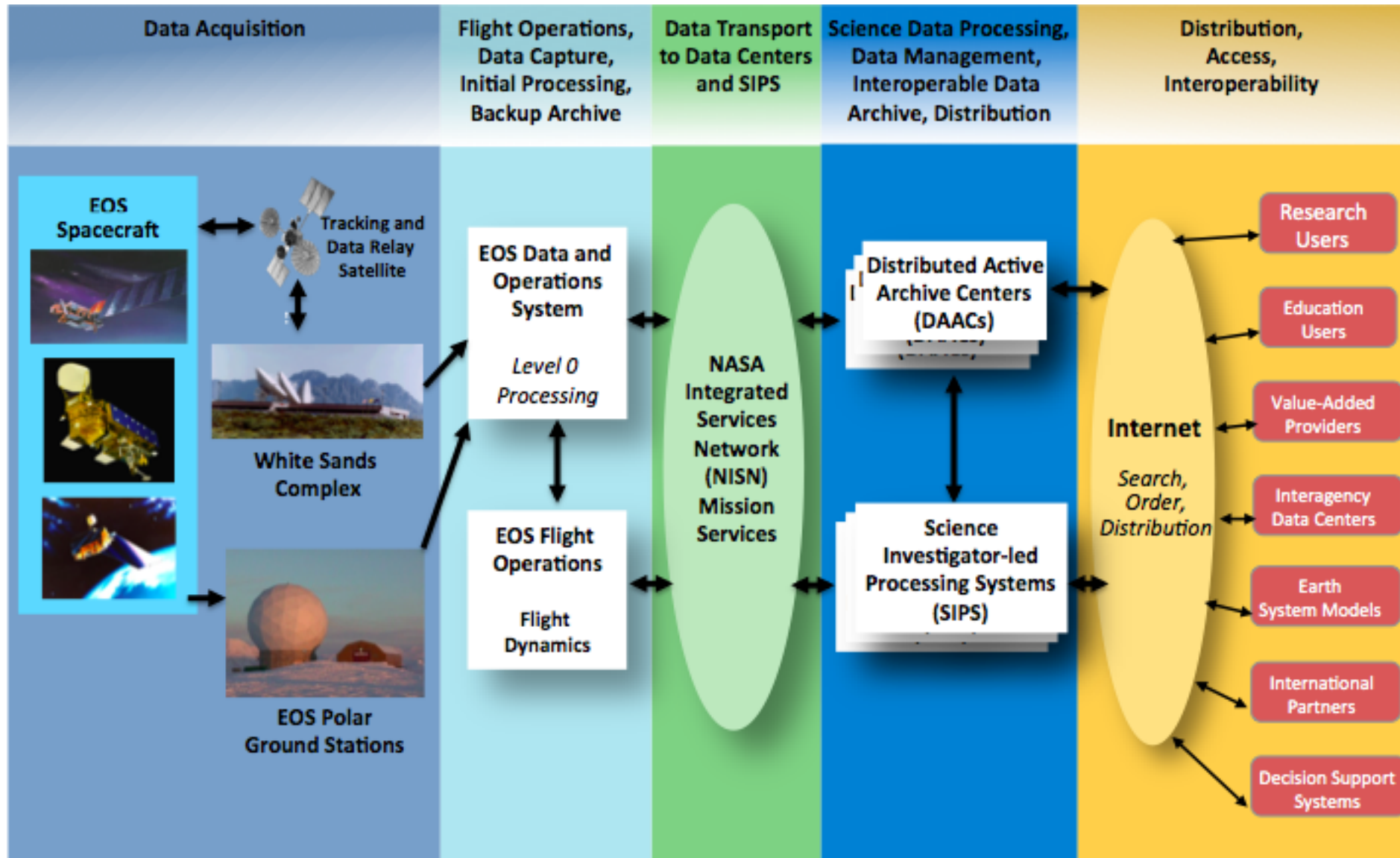
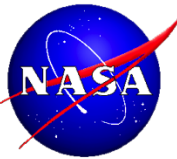
Christopher Lynnes
EOSDIS Systems Architect
Code 586, NASA/GSFC
HPC Forum 2015



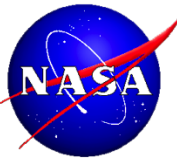
EOSDIS processes, archives and distributes data from Earth observing satellites



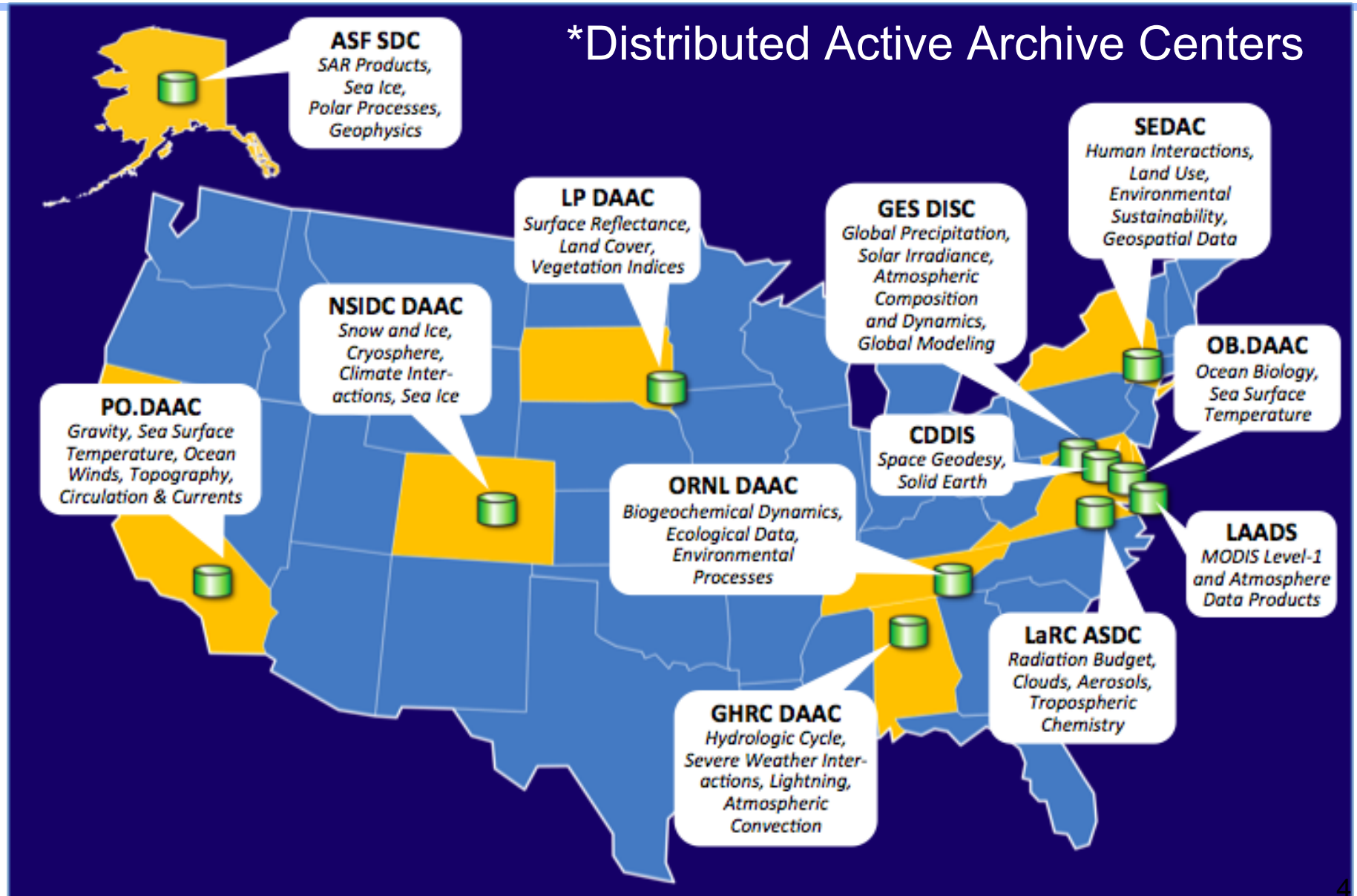
EOSDIS manages data from downlink to distribution



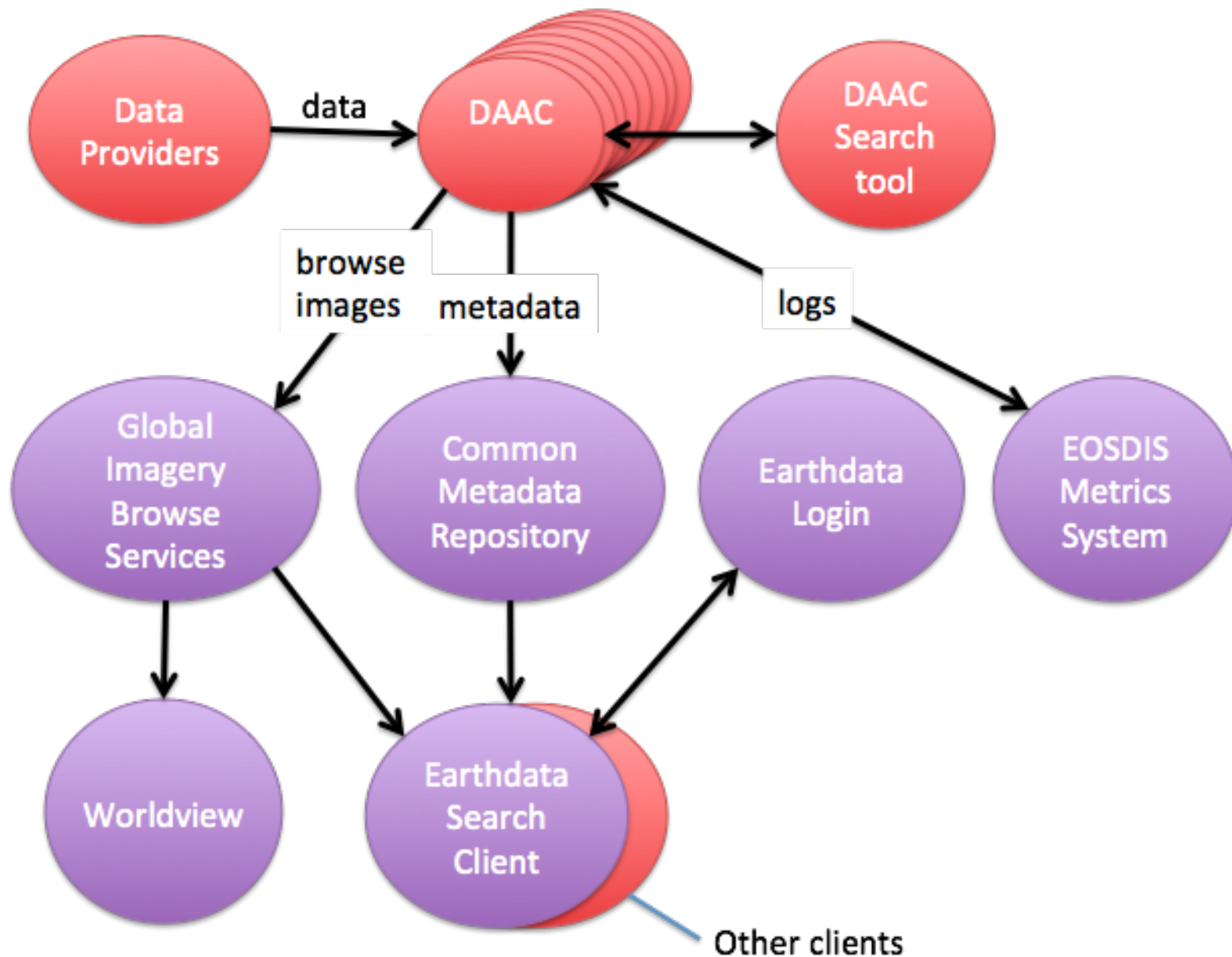
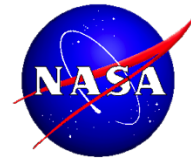
Data are archived and distributed by DAACs oriented around science disciplines



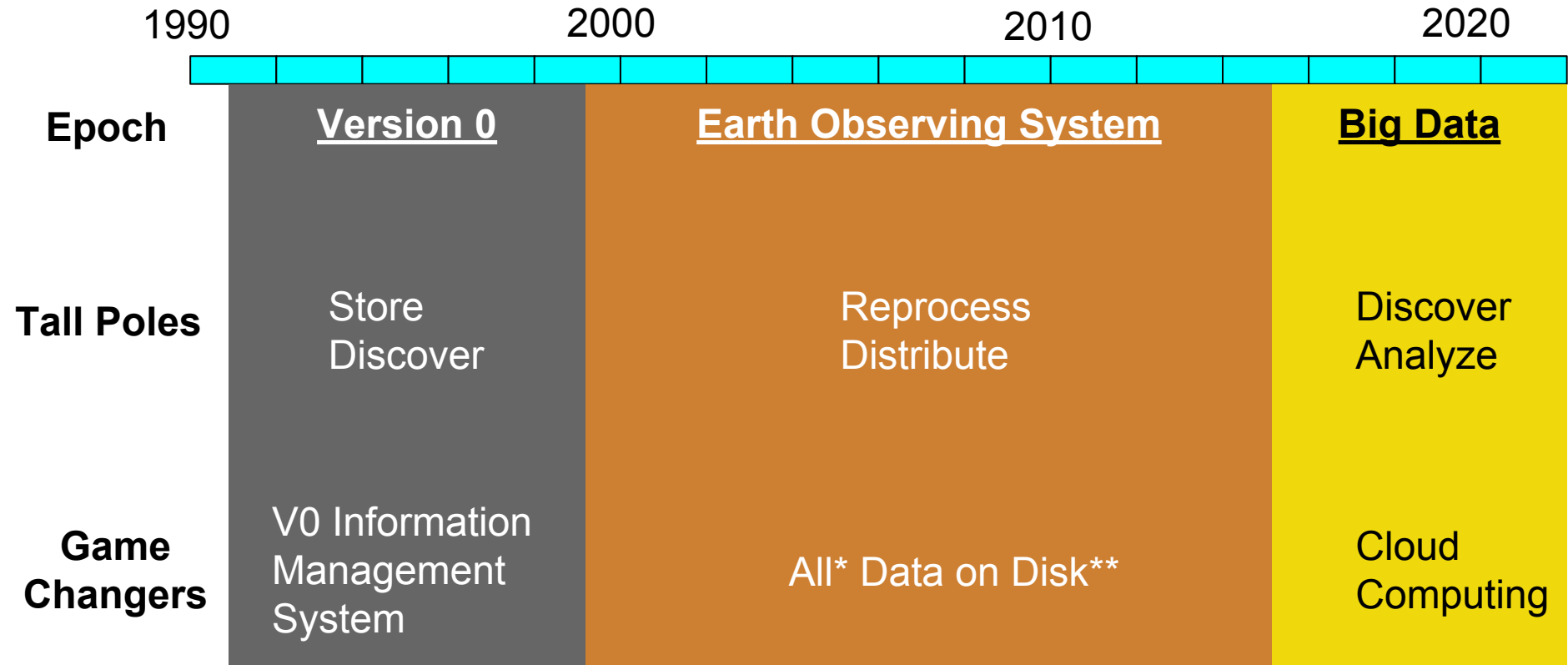
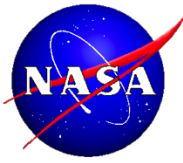
*Distributed Active Archive Centers



DAACs and users are supported by EOSDIS Common Services



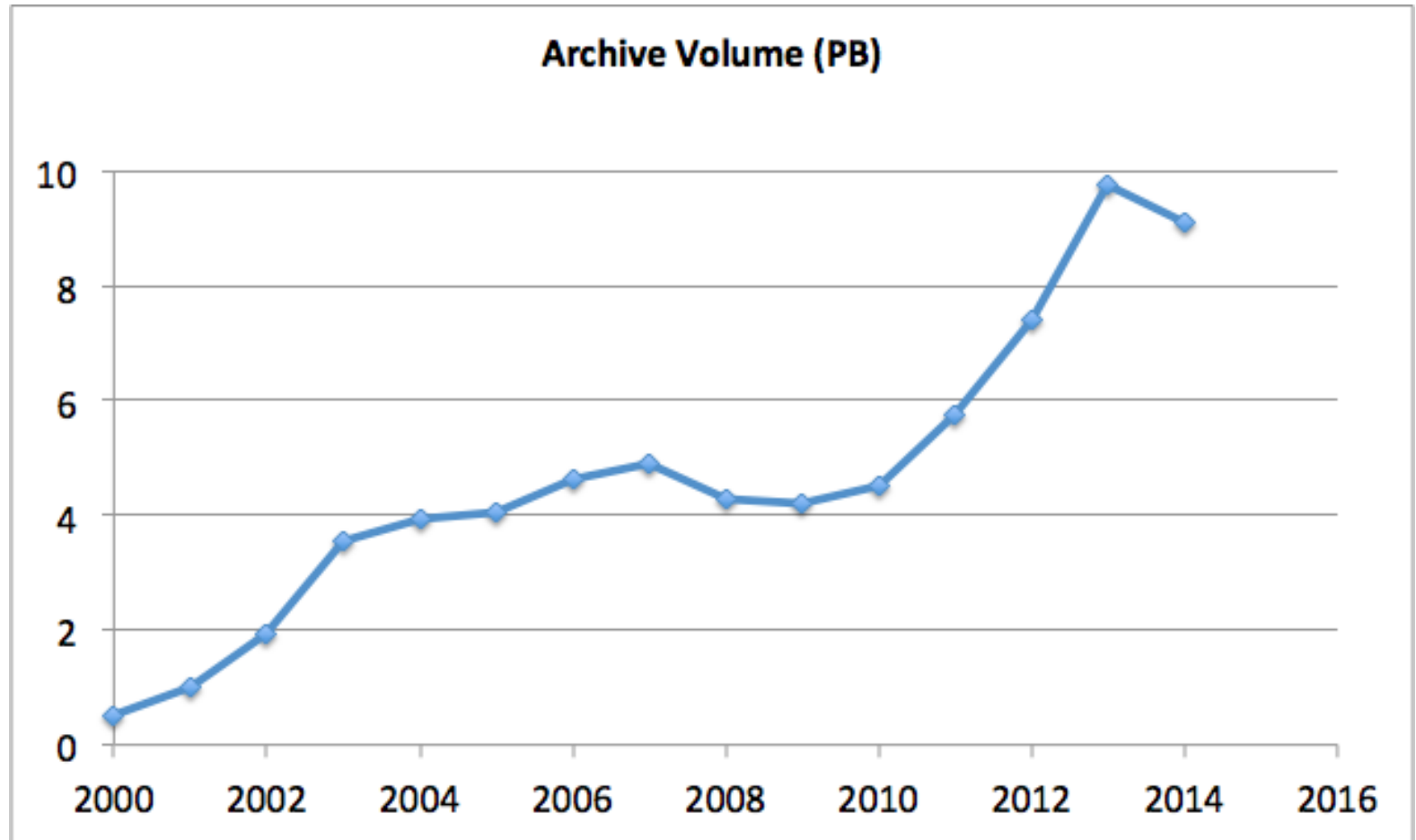
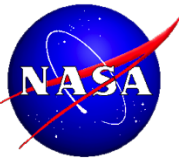
EOSDIS Evolves Continually



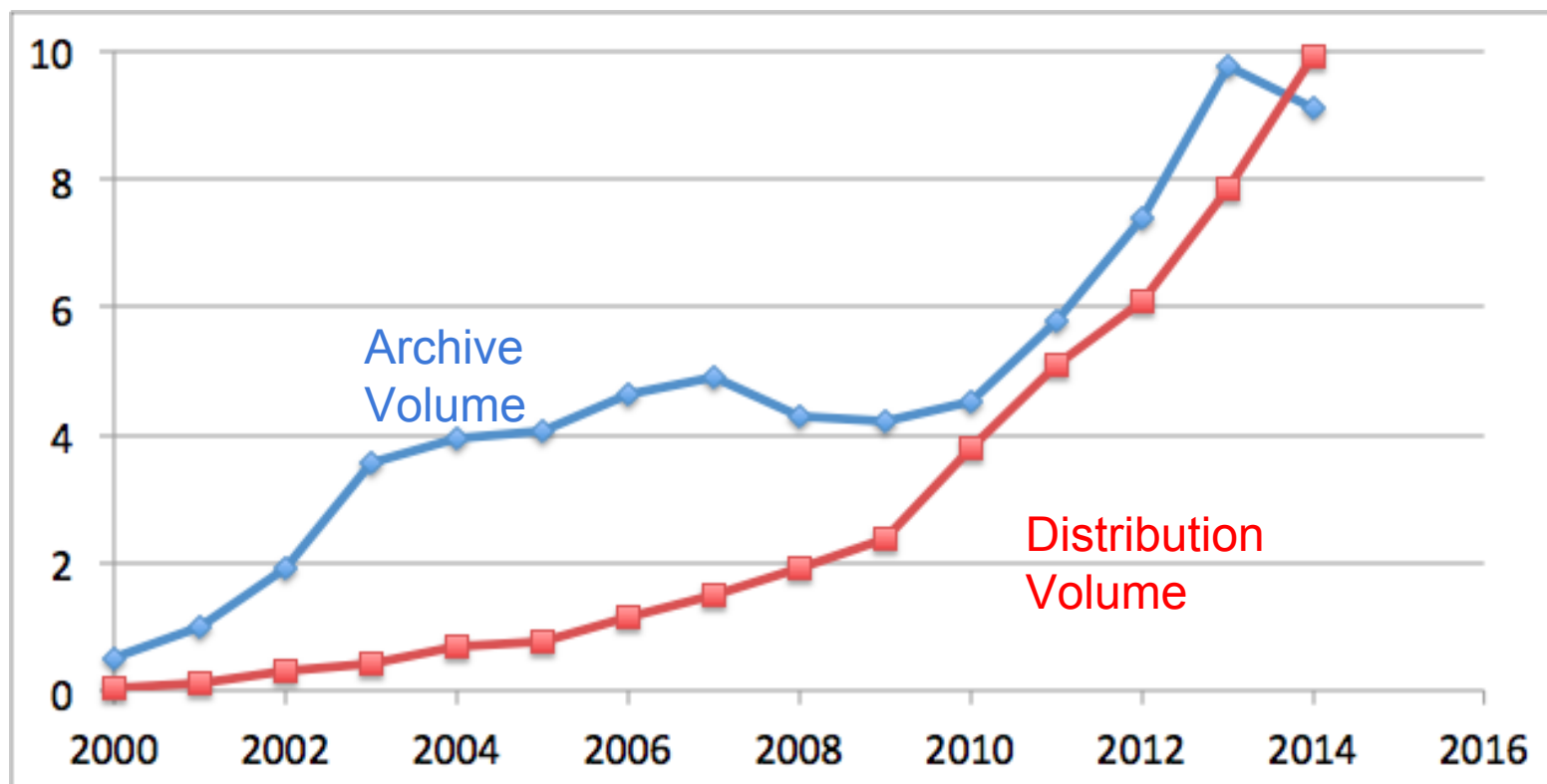
*Almost

**Thank you, HDF internal compression!

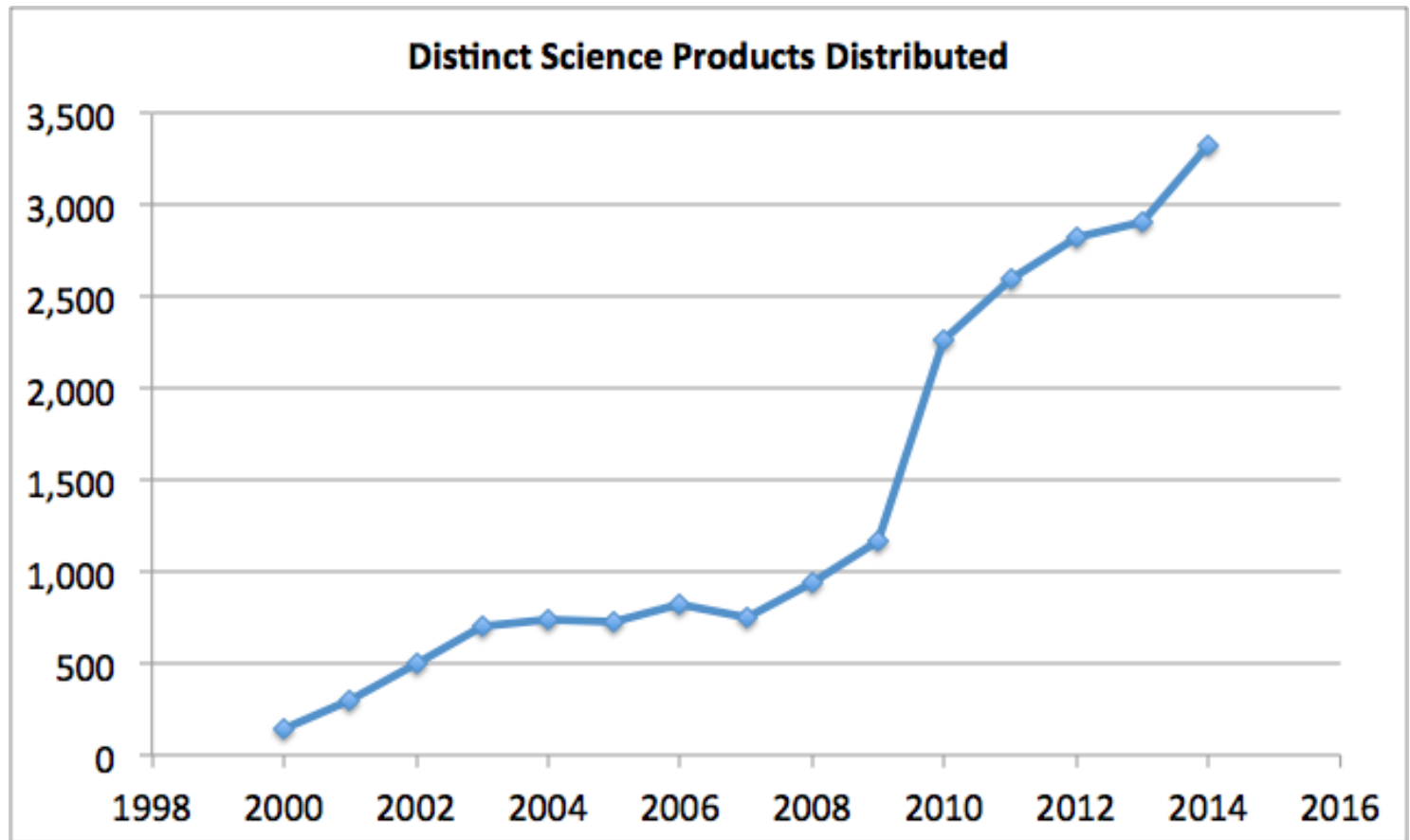
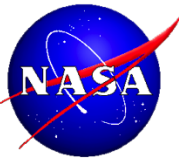
Big Data Volume Growth



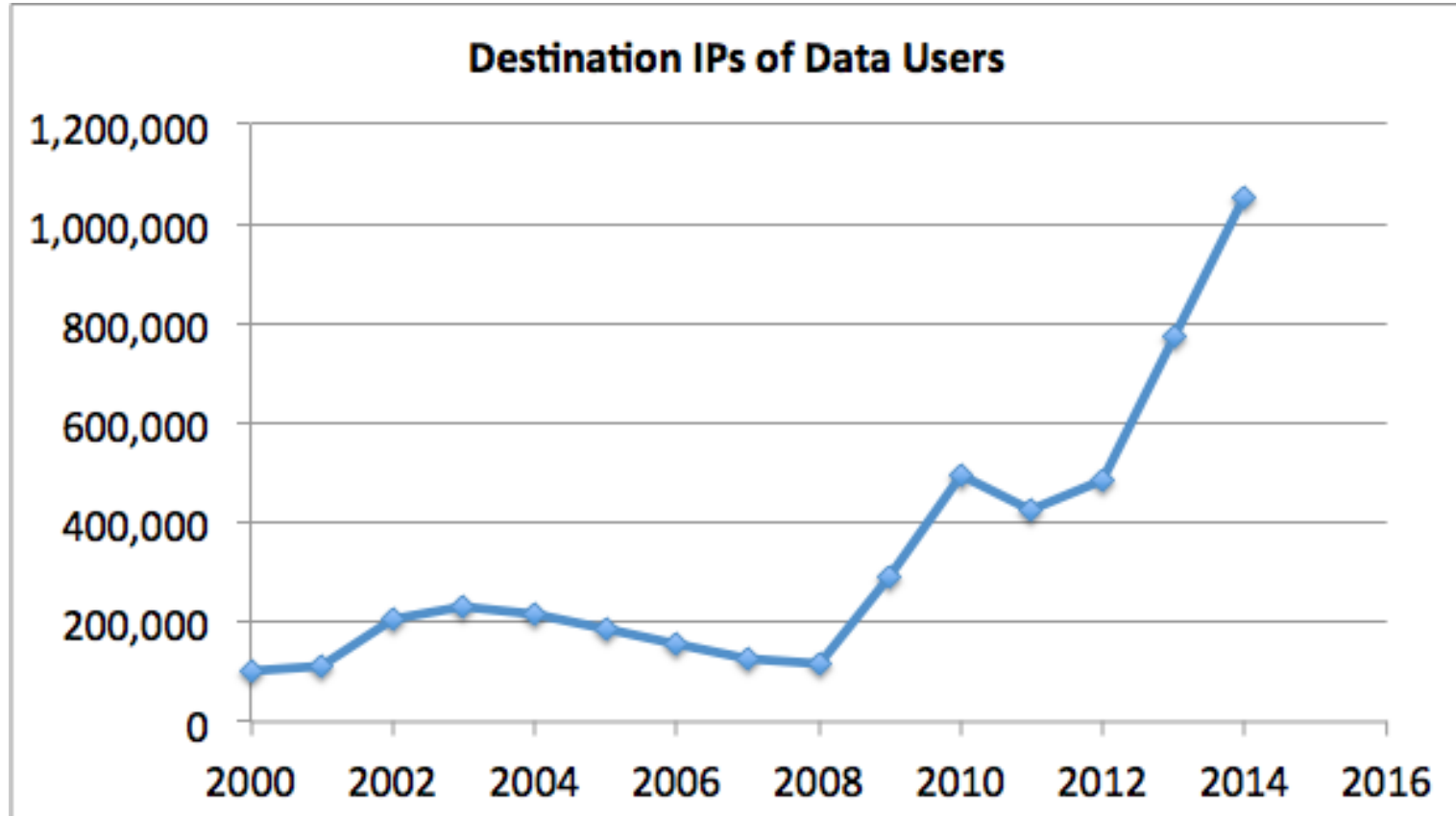
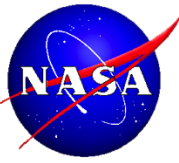
Big Data Distribution Growth

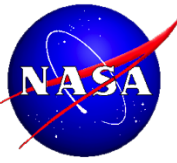


Big Data Variety Growth



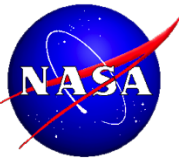
Big Data User Growth



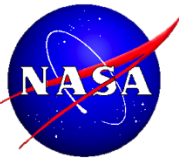


*EOSDIS in the Big Data epoch will
enable more analysis closer to the data.*

Let's Break that Down...



“more analysis closer to the data”



“More Analysis”

More Complexity



Subset

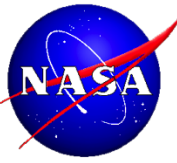
Data Variable	Spatial Area	Quality Filter
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Transform

Reprojection	Mosaicking
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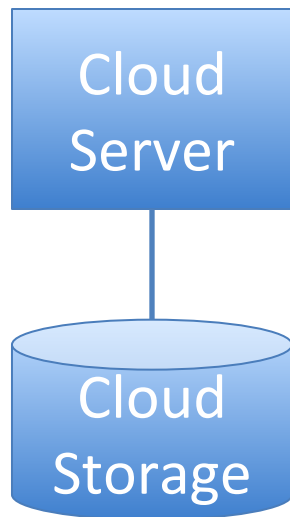
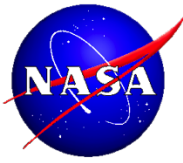
Analyze

Simple Stats	Viz.	Complex Stats	User's Algorithm
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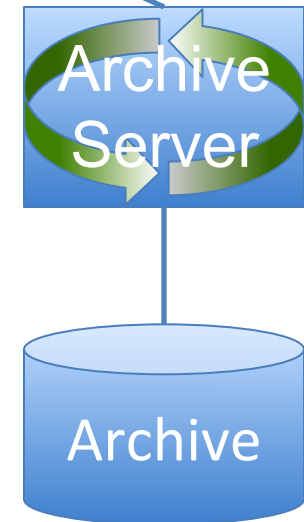


“more analysis **closer to** the data”

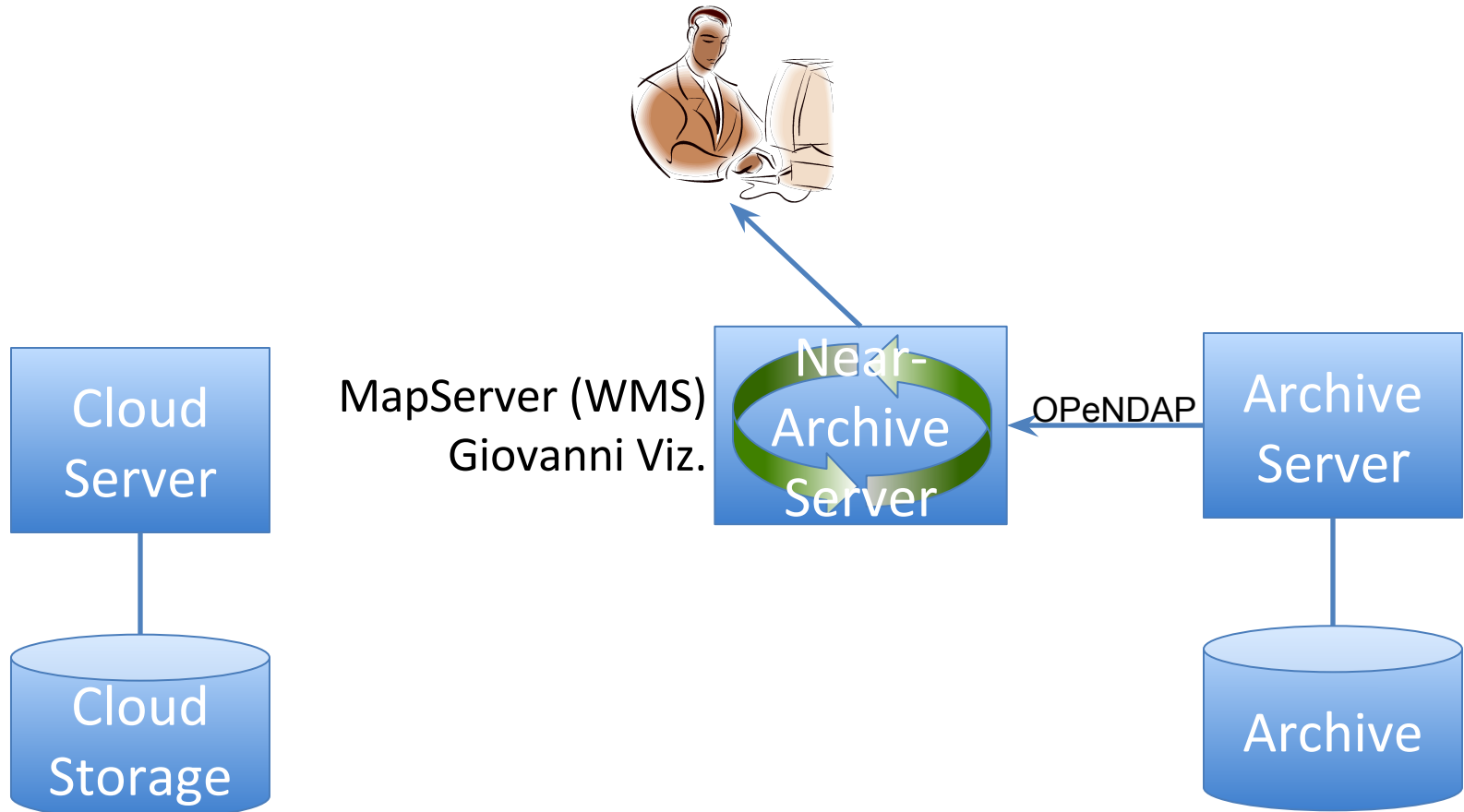
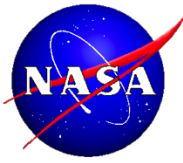
“Close To” = At Archive



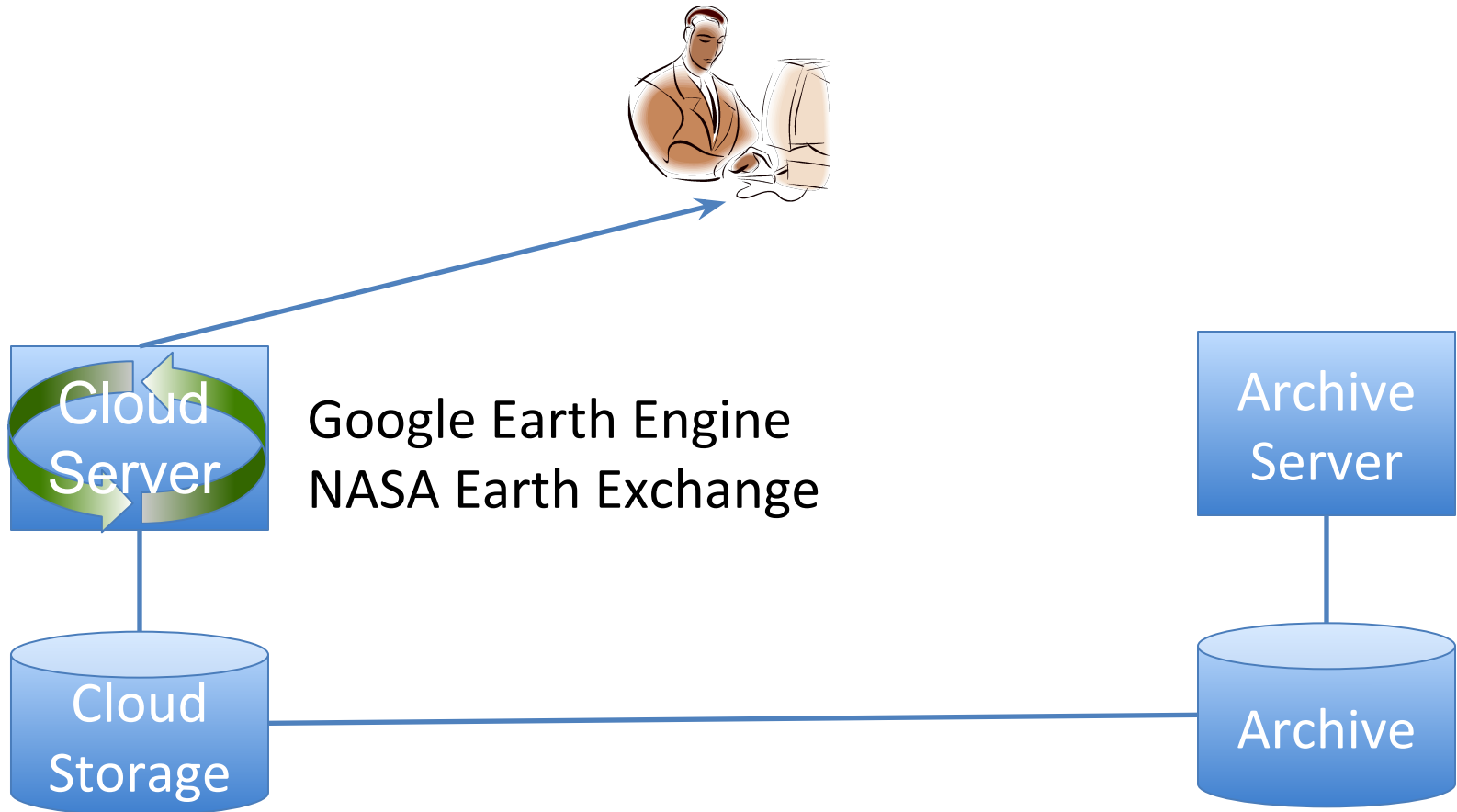
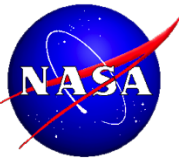
GrADS Data Server
ArcGIS for Server

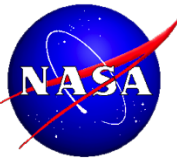


“Close To” = Near Archive



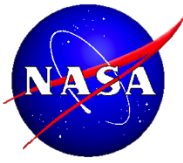
“Close To” = Near Processing





“more analysis closer to **the data**”

“The Data”



Suitable Data Form	Processing Technologies
Original Data as Archived	GrADS Data Server ArcIMS for Server
Groomed Data (reformatted, annotated)	Earth System Grid Giovanni
Reorganized Data	Google Earth Engine SciDB MapReduce

What's Next?

